

GENERAL BIOLOGY

UNIT CODE: MED/CU/NUD/CC/01/5/A/A

Relationship to Occupational Standards

This unit addresses the unit of competency: demonstrate knowledge of general biology

Duration of Unit: 45 hours

UNIT DESCRIPTION

This unit specifies the competencies required to demonstrate knowledge of general biology. It involves demonstrating the knowledge of terminologies in general biology, types of plant and animal cells and tissues, plant anatomy and physiology, structures of a plant and their functions, knowledge of human body systems, their structures, functions and associated disorders. It also entails demonstrating knowledge of macromolecules and their metabolism, knowledge of enzymes and hormones and knowledge of biochemistry of macronutrient.

Summary of Learning Outcomes

- 1 Demonstrate the knowledge of cell and cell division
- 2 Demonstrate knowledge of types of tissues and their location
- 3 Demonstrate the knowledge of the human body systems, their structures, functions and associated disorders.
- 4 Demonstrate the knowledge of the human body systems, their structures, functions and associated disorders.
- 5 Demonstrate the knowledge of macromolecules and their metabolism
- 6 Demonstrate the knowledge of enzymes and hormones
- 7 Demonstrate the knowledge of biochemistry of macronutrient

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Demonstrate the knowledge of terminologies in general biology	<ul style="list-style-type: none">• Definition of biology and general biology• Branches in general biology• Basics of plant and human cell	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews
2. Demonstrate knowledge of types of plant and animal cells and tissues	<ul style="list-style-type: none">• Types of plant and animal cells and tissues• Structures of plant and animal cells• Roles of plant and animal	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews

Learning Outcome	Content	Suggested Assessment Methods
	organelles <ul style="list-style-type: none"> • Plant and animal cell metabolism and reproduction 	
3. Demonstrate the knowledge of the plant anatomy and physiology. structures of a plant and their functions	<ul style="list-style-type: none"> • Identification and description of plants with nutrition and health potency. • Anatomy and physiology of the identified plants • Classification of the identified plants into herbs, spices and condiments. 	<ul style="list-style-type: none"> •
4. Demonstrate the knowledge of the human body systems, their structures, functions and associated disorders.	<ul style="list-style-type: none"> • The components of the human body systems • Relevant functions of the body systems • Relevant principles of the body systems to performance of therapy treatment • The nervous system • The cardiovascular system • The respiratory system • The renal system • Musculoskeletal system • Reproductive system • Skin • Gastro intestinal system • Central nervous system • Endocrine system • Special senses 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
5. Demonstrate the knowledge of macromolecules and their metabolism	<ul style="list-style-type: none"> • Meaning of macromolecules and metabolism • Types of macro molecules and metabolism • The structural elements of macromolecules and their interaction with other small molecules • The hierarchy of molecular organization of cells 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews

Learning Outcome	Content	Suggested Assessment Methods
6. Demonstrate the knowledge of enzymes and hormones	<ul style="list-style-type: none"> • Nature of enzymes and the process of enzyme catalysis • Biochemical reactions which micro and macro molecules undergo within the organisms • The structure of enzymes and their roles in digestion • The relationship among holoenzymes, apoenzymes and cofactors • The general mechanisms by which enzymes catalyze reactions • Properties of enzymes • Role of enzyme in food processing • Isoenzymes and zymogens • Functions of hormones in homoeostasis • Mechanisms in hormonal physiology 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
7. Demonstrate the knowledge of biochemistry of macronutrient	<ul style="list-style-type: none"> • Meaning of terms in biochemistry of macronutrients • Biochemistry of carbohydrates; structure, properties and classification of carbohydrates, carbohydrate metabolism, energy path ways and metabolic disorders of carbohydrate metabolism • Biochemistry of proteins; structure, properties and classification of proteins, protein metabolism, metabolic path ways and metabolic disorders of protein metabolism • Biochemistry of lipids; structure, properties and classification of lipids, lipid metabolism, metabolic path ways and 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews

Learning Outcome	Content	Suggested Assessment Methods
	metabolic disorders of lipid metabolism	

Suggested Methods of Instruction

- Projects
- Demonstration by trainer
- Practice by the trainee
- Discussions
- Direct instruction

Recommended Resources

- Microscopes and slides
- Staining reagents
- Skills lab

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